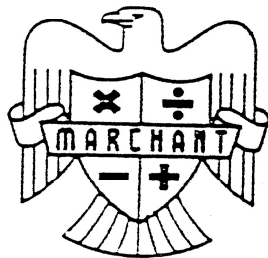


MARCHANT



ADX FIGUREMATIC

SERVICE INSTRUCTION BOOK

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A Dividend Entry mechanism, a Keyboard Clear after Division, and a TD Selective Carriage Position Stop carriage has been added to a DRX machine to comprise the ADX model.

The Dividend Entry mechanism provides a means of tabulating the carriage rightward to any desired pre-set position and then automatically entering any pre-selected dividend to the product dials.

To operate the ADX machine for Division the "Divi+Dend" key is depressed to enter the keyboard dividend selection to the middle dials. Divisor is then entered into Keyboard and the Division Key depressed.

Depression of the Dividend Entry Key opens the Product Clear Clutch for middle dial clearance, and opens the Clear Return Clutch which in turn opens the Counter Clear Clutch causing upper dial

clearance and then a right shift. Upon termination of the right shift the depressed Dividend Entry Key initiates an add operation which transfers the pre-selected dividend from the Keyboard to the middle dials and clears the Keyboard.

DIVIDEND ENTRY KEY:

1. Depression of the Dividend Entry Key 87839, figure 1208, causes the ear "K" on the lower portion of the key stem 36309 to rock the Dividend Key Bellcrank 36974 clockwise about stud 36983* lifting blocking surface "C" away from ear "D" allowing Clear Return Actuator Bellcrank 36165 to move rearward about stud 36162* under the action of spring 7137.
2. Surface "B" of 36974 projects out farther than surface "C" on 36974 to enable the upper ear "D" of 36165 to rock between them.

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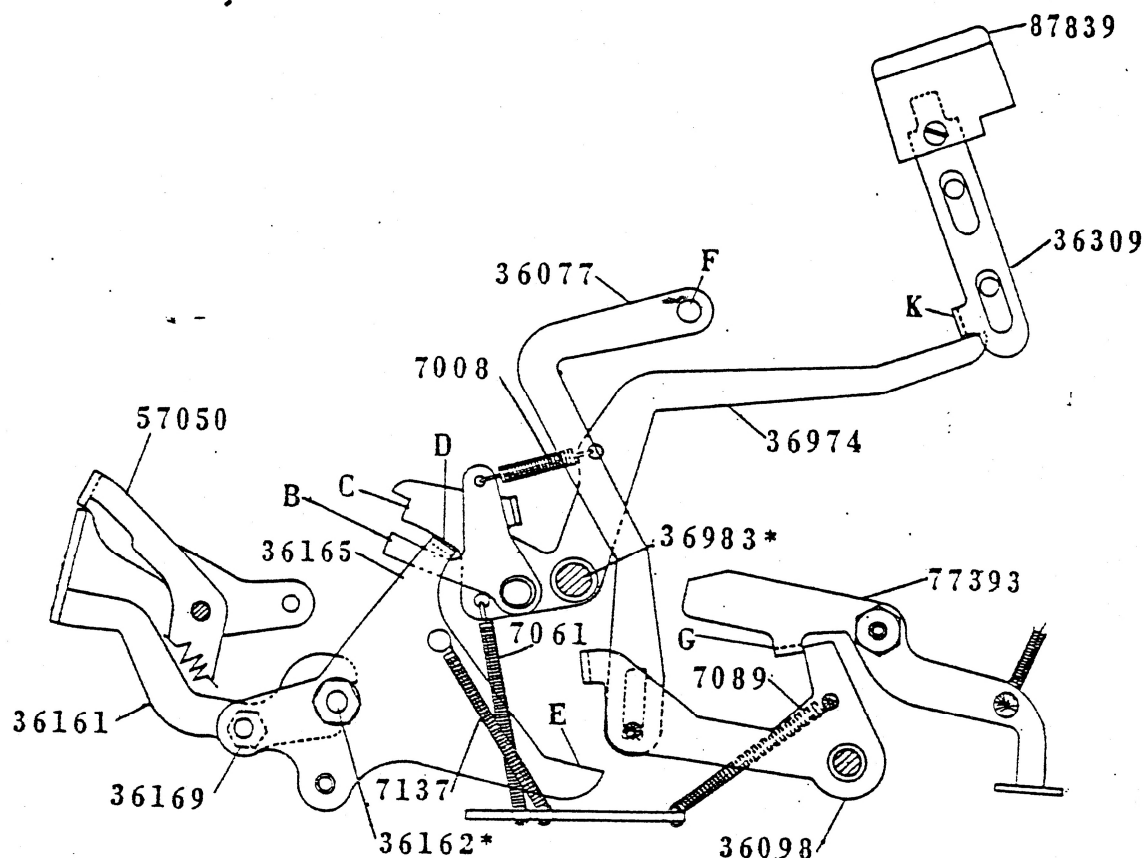


Fig. 1208

3. If the Dividend Entry Key is depressed when Bellcrank 36165 is turned counterclockwise by rearward movement of Recock Link 36967 the forward surface "B" of 36974 will snap upward by spring 7008 and prevent the ear "D" of 36165 from moving clockwise again. This prevents repeat clearing if Dividend

Key is held down. When the Dividend Entry Key is released, the upper ear "D" of 36165 falls to rest on the surface "C" of 36974 so that subsequent depression of the Dividend Entry Key releases 36165 for another shift and clear cycle.

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DIVIDEND ENTRY COUNTER CLEARANCE:

4. When the Clear Return Actuator Bellcrank 36165 is released to rock clockwise by action of spring 7137, the Clear Return Bellcrank Actuator Arm 36161 rocks upward about stud 36162* and causes the Clear Return Bellcrank Assembly 57050 to rock clockwise exactly as it does upon depression of the Clear Return Key. This action initiates the clearance of the Upper Dial by using the Upper Dial Clearance Trip Lever 72796 and a right tabular shift exactly as if the Clear Return Key had been depressed (See page 996 paragraph 2 of Service Instruction Book.) Fig. 1208.

DIVIDEND ENTRY MIDDLE DIAL CLEARANCE:

5. When the Clear Return Bellcrank Actuator Arm 36161 rocks upward it moves the Product Clear Connecting Arm 57997 attached to the Product Clear Bellcrank

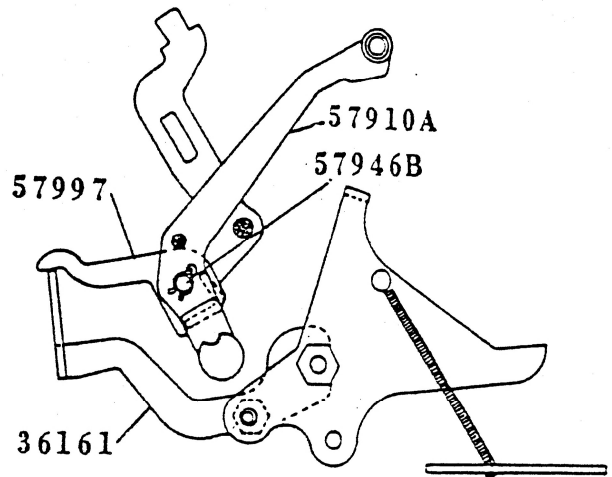


Fig. 1209

57910A about shaft 57946B and initiates a product clear operation. Clearing middle dials like in other models. (See page 421 of service instruction book.) Fig. 1209.

DIVIDEND ENTRY ADD OPERATION:

6. As the Clear Return Actuator Bellcrank, 36165, turns clockwise the rearward nose "E" moves downward allowing the Add Actuator Bellcrank 36098 to rock counterclockwise. Stud in Add Actuating Bellcrank Assembly 36098, is then brought downward under action of spring

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7089 which pulls the Add Actuator Link 36077 downward and causes the add stud "F" in Add Operating Assembly 36084 to be pulled downward (Fig. 1208) and initiate an add cycle.

However, the add cycle does not occur until a shift termination lifts up ear "G" of Tab Disabling Lever Interponent 77393 to release the add Actuating Bellcrank 36098.

add cycle causes roller "H" on the Carriage Dip Lever 27210 to move upwardly and cams the upper portion of Recock Lever 36988 counterclockwise about shaft 37571. This causes the lower portion of Recock Lever 36988 to move rearward and pull Recock Link 36967 rearward. Eccentric 36968 connects Recock Link 36967 with the Clear Return Actuator Bellcrank 36165 causing Bellcrank

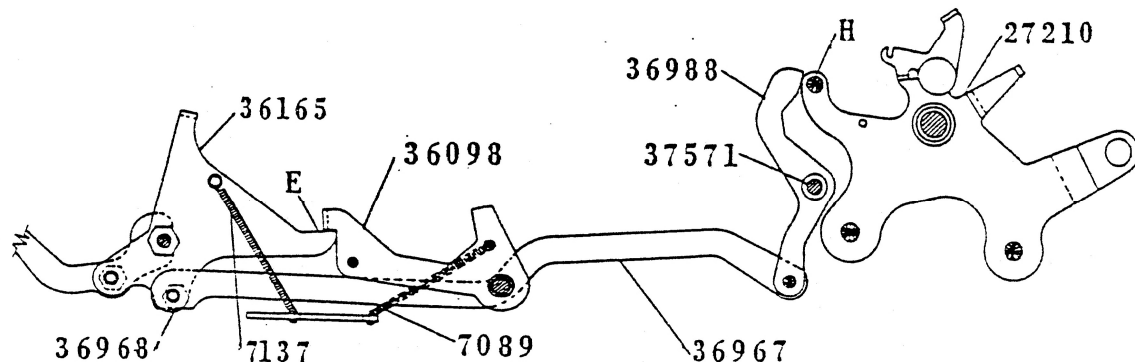


Fig. 1210

DIVIDEND ENTRY RESTORE:

7. Recock of the two springs 7089 and 7137, is accomplished as follows: Fig. 1210.

The carriage dip caused by the

to be rocked counterclockwise and allowing the forward surface "B" of 36974 to snap up and stop against ear on 36974. The rearward nose "E" of 36165 rocks to

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restore the Add Actuator Bellcrank 36098 to its original position. Spring 7061 on Dividend Key Bellcrank 36974

(See Figure 1208)

rotates 36974 counterclockwise about stud 36983* to its original starting position and lifts Dividend Entry Key stem 36309 by ear "K" to its normal up position. Surface "C" is positioned behind ear "D" to retain 36165 in its normal starting position.

DIVIDEND ENTRY SHIFT TERMINATION:

8. Tab Disabling Lever Interponent 77393 is rocked clockwise by action of the Shift Terminating Bellcrank 72410A (described on page 893 of Service Instruction Book). 72410A in turn is actuated by the Shift Terminating Trip Lever 72495. Termination of a shifting carriage is the same as that described on page 970 of Service Instruction Book for the TD, Shift Terminating Trip Lever 72505

9. When either the Clear Return Key or Dividend Entry Key is depressed with the carriage already standing at a carriage tab key position, it is retained in this position by an immediate Shift termination. This immediate shift termination also prevents shifting out of position if the operator depresses either the Dividend Entry Key or the Clear Return Key twice.

10. When the Clear Return Clutch 57065* operates, Fig. 1211, the Right Shift Cam followers 72793, and 72794 rock counterclockwise and lift up the attached Disabling Link 72485. The upward movement of 72485 lifts the rear nose "C" of Disabling Interponent 72481* that fits into a slot of 72485 and lowers the forward nose "B" of 72481* about stud 72484*.

11. When the carriage is at a Tab

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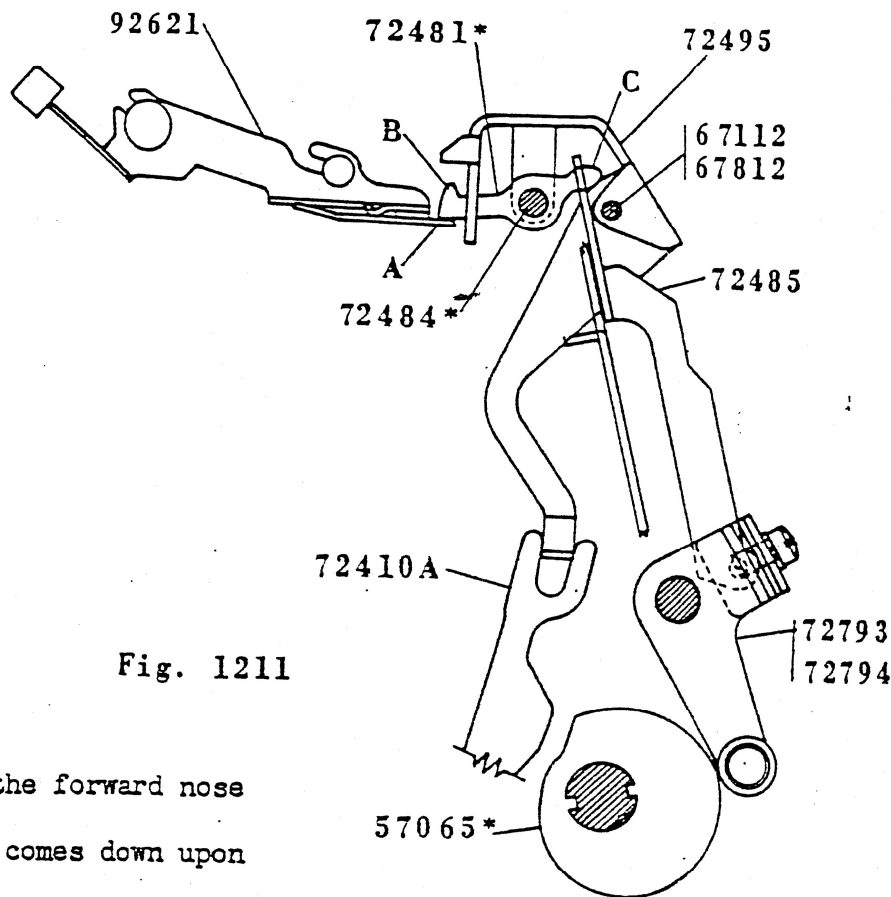


Fig. 1211

set position the forward nose "B" of 72481* comes down upon ejected tip "A" of Selective Carriage Position Stop Key 92621. As 72485 continues to rise, Shift Terminating Bail 72495 is then rocked clockwise about shaft 67112-67812. The ear on the lower end of the Shift Terminating Trip Lever 72495 is operates in a fork in the upper end of lever 72410A and a shift termination occurs. (See fig. 1066, page 893 of Service Instruction Book.)

12. Tab Disabling Lever 77393 is rocked clockwise rocking Right Shift Tab Latch 72748A so that the Shift Connecting Shaft 72995B cannot be latched into shifting position. (See page 987 of Service Instruction Book). If the Dividend Entry Key has been depressed when 77393 is rocked clockwise ear "G" of 77393 is raised releasing 36098 to initiate an add cycle.

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13. If the Clear Return Clutch 57065* operates with a retracted Stop Key, 92621 the forward nose "B" of Disabling Interponent, 72481* will rock down in an idle manner; consequently no clockwise motion can be imparted to Terminating Lever 72495 to actuate Tab Disabling Lever 77393. Since the carriage shift is not terminated, the carriage will shift as described for the DRX on page 985 Service Instruction Book by latching the Right Shift Tab Latch, 72748A for a right shift.

14. For a description of how the carriage Shift is Terminated when shifting into a tab set position see page 970, 971 paragraph 1 and 2 of Service Instruction Book. Trip levers 72520 and 72525 used on 72505 are also used on 72495, springs 7771 and 7773 are used on 72495 instead of 7507 and 7560 as used on 72505

15. The Vertical Shift Shaft Adjusting Eccentric 12412 and screw 5629 has been replaced by 12422 and 5645 in order to provide lateral room for the Shift Terminating Bail 72495.

DIVIDEND ENTRY KEYBOARD CLEAR:

16. Because the ADX machine uses the part of the ACR mechanism that clears both the Keyboard and Middle Dials and only Keyboard Clearance after Division is required, the ear "A" on Product Bail Latch Link 57928 has been provided to lift up the Product Clear Release Link on 57954 when Division Key is depressed to disable the Middle Dial Clear Key before the ACR mechanism operates. (Fig. 1212). (See page 807 paragraph 4, Fig. 991 in Service Instruction Book for description of ACR mechanism). Clearance of the Product Dials at the end of Division is not necessary as the Product Dials are cleared at the time of a

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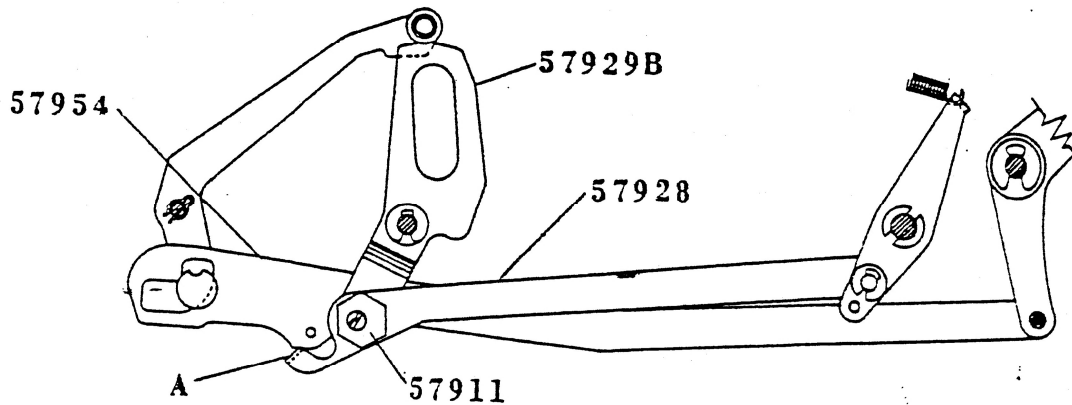


Fig. 1212

Dividend Entry Operation.

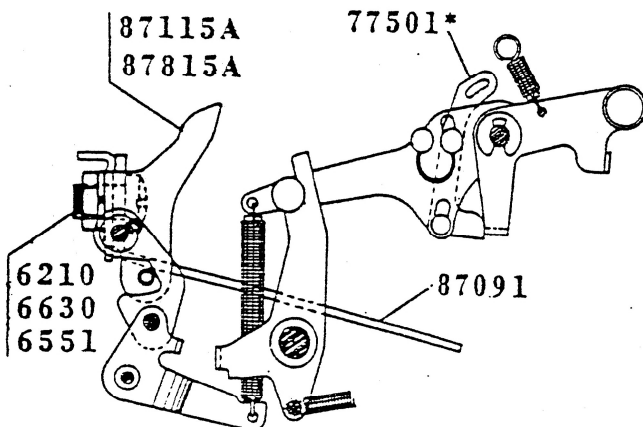


Fig. 1213

division in ADX machines the Disabling Slide 77501* normally controlled by the ACR lever may be moved with a spring hook into its non-operative position. Fig. 1213.

18. The clearance of the keyboard caused by the ACR mechanism is so rapid without the load of the middle dial clear operation that a Counter Weight, 87091 must be attached to the Keyboard Clear Gate to assure positive keyboard clearance. This counter weight is attached to the left end of

17. There is no ACR lever, 77520 to engage or disable the ACR action on ADX machines. For testing

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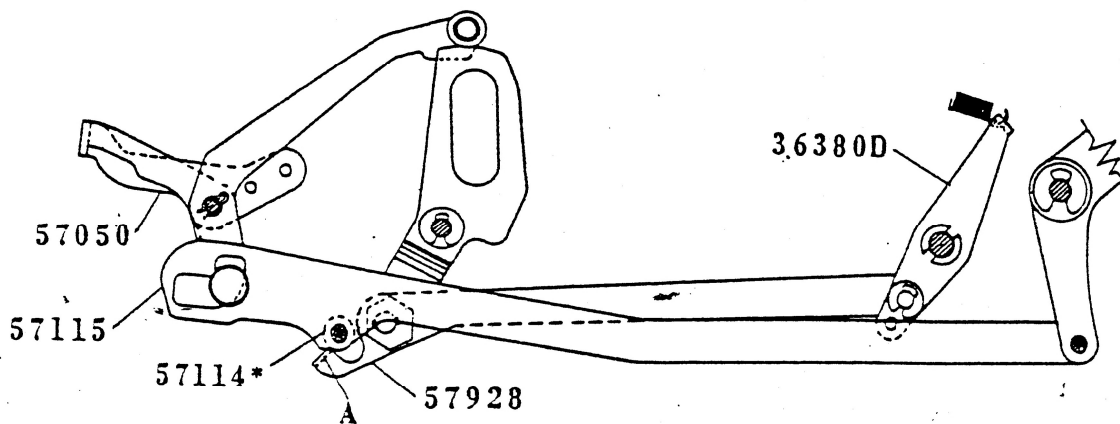


Fig. 1214

the Keyboard Clear Gate, 87115A or 87815A, by means of a screw, 6210, lockwasher 6630, and nut 6551. Fig. 1213.

it from the Clear Return Bellcrank Assembly 57050. Fig. 1214.

INTERLOCKS:

19. The Dividend Entry Key is disabled during Division as follows: Fig. 1214. When the Division Key is depressed and the Division Pinning assembly 36380D rotated clockwise the Product Clear Bail Latch Link 57928 moves ear "A" forward against stud 57114* on the Clear Return Release Link 57115 and raises 57115 up to disable

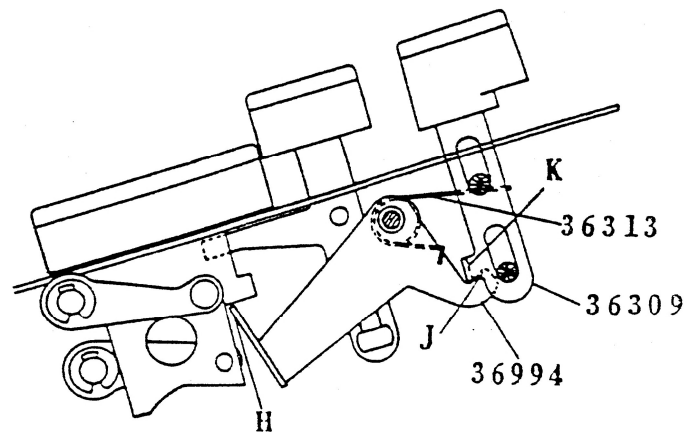


Fig. 1215

20. An interlock between the Dividend Entry Key and the Add and Minus keys has been provided.

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Fig. 1215. Dividend Add Interlock Assembly 36994 is normally held in a clockwise position by Dividend Add Interlock Spring 36313. Depression of either the Add or Minus keys lowers the forward ear "H" of 36994 causing the hook "J" on rear of 36994 to be brought under the ear "K" of the Dividend Entry Key Stem 36309, thus preventing depression of the Dividend Entry Key.

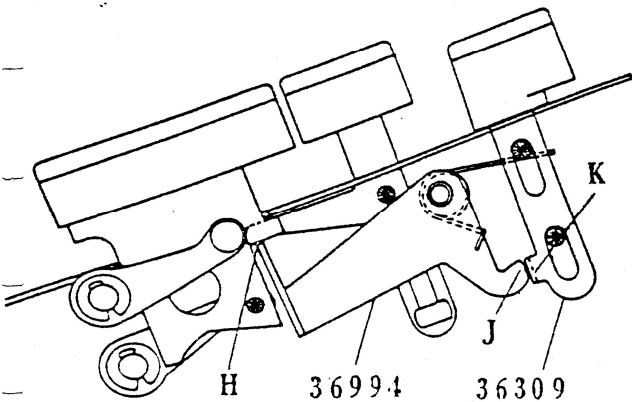


Fig. 1216

36994 cannot move rearward by depression of Add or Minus Key more than a small amount without being blocked by the vertical forward surface of ear "K" on Dividend Entry Key Stem 36309 thus preventing depression of the Add or Minus Key. Fig. 1216.

ADJUSTMENTS:

22. When the Dividend Entry Key is depressed, the upper ear "D" of Actuator Arm 36165 should be released at a time when the Dividend Entry Key is .030-.040 short of full depression. After sustained depression of the Dividend Entry Key and recock of all the mechanism, the Ear "D" should fall from the surface "B" of 36974 to the surface "C" of 36974 not less than .030 short of full rise of the Dividend Entry Key. The upper ear "D" of 36165 should be adjusted upward or downward until these

21. If the Dividend Entry Key 36309 has already been depressed the rear surface of hook "J" on

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conditions are obtained.

23. The Clear Return Bellcrank Actuator Eccentric 36169 is provided to adjust the position of Lever 36161 upward or downward relative to Actuator Arm 36165. With 36165 in its re-cocked position, and the Dividend Entry Key released, the upper ear of Lever 36161 should not quite be in contact with the Clear Return Bellcrank Bail 57050. With power off and the Dividend Key depressed, Lever 36161 must carry the Clear Return Bellcrank Bail well past the point necessary to open the Clear Return Clutch 57065 and the Middle Dial Clear Clutch.
24. To adjust the Dividend Recock Link Eccentric 36968, put a multiplication problem in the machine with the hand crank and when the carriage is completely dipped hold the Dividend Entry Key in its depressed position.

Adjust Eccentric 36968 so that the ear "D" of Clear Return Actuator 36165 is approximately .020 higher than the surface "B" of Dividend Key Bellcrank 36974. Position Eccentric 36968 so that Recock Link 36967 is in as low a position as possible with correct adjustment clearance between ear "D" of 36165 and surface "B" of 36974.

25. The ear of Product Clear Bail Latch Link 57928 which raises the middle dial clear link 57014A* and the Clear Return Release Link 57115 must never bind the links by trying to cam them upward further than it is possible for them to go. The eccentric 57911 on link 57928 and 57929B must position 57928 as low as possible and still give the correct clearance between the roller on the Product Clear Arm of 57995 and 57929B.